

### **REMARKS**

Claims 1-38 are rejected under 35 U.S.C. § 102(b) as being anticipated by Murasawa *et al.* (U.S. Patent 5,547,823; hereafter "*Murasawa*"). Claims 1-38 are rejected under 35 U.S.C. § 102(e) as being anticipated by Kimura *et al.* (U.S. Patent 6,407,033; hereafter "*Kimura*"). Claims 1 and 11-14 are herein amended for clarification purposes. Claims 9, 10, 22-24, 31-34 and 38 are herein cancelled without prejudice. New claims 39-170 are herein added. No new matter has been introduced. Claims 1-8, 11-21, 25-30, 35-37 and 39-170 are pending in the case.

### **Amendments to the Claims**

For clarification purposes, Applicant has instantly amended the claims as follows.

Claims 1: The limitations of original claims 9 and 10 have been inserted into original claim 1, and claims 9 and 10 have been deleted accordingly. Further, the dependencies of claims 11 and 12 have been changed accordingly.

Claim 13: The expression "an average structural composition" has been herein added to claim 13. In claim 13, the "average structural composition" of formula (4) in claim 12 is limited to that of formula (5). Thus, it is apparent that the "average structural composition" of the silicone compound is represented by formula (5) in claim 13.

Claim 14: Support for the amendment to claim 14 is found at page 108, bottom line to page 109, line 5 of the present specification.

New claims 39-41, 45-48, 89-91, 92-94, 118, 119, 137, 138 and 155 to 159: Support for these new claims can be found, for example, at page 34, lines 16 to 17, and page 34, line 24 to page 35, line 3 of the present specification.

New claims 42-44, 49-52, 95-97, 98-100, 120, 121, 139, 140 and 160 to 164: Support for these new claims is found at page 35, lines 12 to 17 of the present specification.

New claim 53: Support for this new claim is found at page 111, line 24 to page 112, line 2.

New claims 54 and 125: Each of these new claims corresponds to claim 6.

New claim 55: This new claim corresponds to claim 7.

New claim 46, 88 and 105: Each of these new claims corresponds to claim 14.

New claims 59-61, 130 and 147: Each of these new claims corresponds to claim 16.

New claims 62-64 and 131: Support for these new claims is found at page 95, line 24 to page 96, line 2 of the present specification.

New claim 65-67: This new claim corresponds to claim 18.

New claim 68-70: This new claim corresponds to cancelled claim 23.

New claim 71-73: This new claim corresponds to cancelled claim 24.

New claims 74-76, 135, 151 and 152: These new claims correspond to claim 27.

New claims 77-79, 134, 136, 150, 153 and 154: These new claims correspond to claim 26.

New claims 80-88, 116 and 117: Support for these new claims is found at page 105, lines 16 to 22 of the present specification.

New claim 101: Support for this new claim is found at page 107, line 21 to page 108, line 1 of the present specification.

New claim 102: This new claim is supported by the entire context of the present specification, for example, by the description at page 90, lines 1 to 4 of the present specification.

New claim 103: This new claim corresponds to claim 5.

New claim 104: Support for this new claim is found at page 37, lines 18 to 25 and page 41, line 24 to page 42, line 5 of the present specification.

New claims 105 and 126: Support for these new claims is found at page 39, lines 4 to 7 of the present specification.

New claims 106, 127 and 144: Each of these new claims corresponds to claim 9.

New claims 107 to 110: These new claims corresponds to claims 10 to 13, respectively.

New claim 111: Support for this new claim is found at page 43, line 18 of the present specification.

New claim 112: Support for this new claim is found at page 47, line 8 to page 49, line 1 of the present specification.

New claim 113: Support for this new claim is found at page 46, lines 19 to 21 of the present specification.

New claim 114: Support for this new claim is found at page 49, line 3 to page 50, line 2 of the present specification.

New claims 115, 132 and 148: Each of these new claims corresponds to claim 19.

New claim 122: Support for this new claim is found at page 11, line 24 to page 112, line 2 of the present specification.

New claim 123: Support for this new claim is found at page 36, lines 5 to 11 of the present specification.

New claim 124: Support for this new claim is found at page 111, line 24 to page 112, line 2 of the present specification.

New claim 128: This new claim is supported by the entire context of the present specification, for example, by the description at page 90, lines 1 to 4 of the present specification.

New claims 133 and 149: Each of these new claims corresponds to claim 25.

New claim 141: Support for this new claim is found at page 31, lines 4 to 7 and page 37, lines 18 to 25 of the present specification.

New claim 142: Support for this new claim is found at page 111, line 24 to page 112, line 2 of the present specification.

New claim 143: This new claim corresponds to claim 8.

New claim 145: This new claim is supported by the entire context of the present specification, for example, by the description at page 90, lines 1 to 4 of the present specification.

New claims 165 and 166: Support for these new claims is found at page 56, line 7 to page 57, line 5 of the present specification.

New claim 167: Support for this new claim is found at page 42, lines 14 to 15 and page 81, lines 4 to 7 of the present specification.

New claim 168: Support for this new claim is found at page 35, lines 4 to 5 of the present specification.

New claim 169 and 170: Support for these new claims is found at page 108, bottom line to page 109, line 5 of the present specification.

#### **Claim Rejections under 35 U.S.C. § 102**

(1) Claims 1-38 are rejected under 35 U.S.C. § 102(b) as being anticipated by *Murasawa*.

Specifically, the Office Action states that *Murasawa* teaches a photocatalyst combined with an organosilicon or hydrofluorocarbon (*Murasawa* Examples 1-3).

Applicant respectfully traverses the rejections.

On one hand, as can be seen from claim 1 of the present application, the modified photocatalyst sol has a volume mean particle diameter of 800 nm or less. This means that the photocatalyst sol of the present invention is free from disadvantageous

agglomeration of catalyst particles (page 53, lines 2-7 of the present specification). Due to this feature, the photocatalyst sol of the present invention is advantageous in that the mechanical characteristics and the like of a film obtained from such a sol are very stable for a long period of time (see page 53, line 10 to page 54, line 6 of the present specification).

In connection with the above, it should be noted that the disadvantageous agglomeration of catalyst particles is prevented by virtue of the modification of the photocatalyst with a specific modifier compound (having an Si-H group) as defined in instantly amended claim 1 of the present application in the presence of a specific dehydrogenation-condensation catalyst as defined in instantly amended claim 1 of the present application.

On the other hand, as can be seen from claim 1 of *Murasawa*, this reference discloses:

“A photocatalyst composite comprising a substrate having photocatalyst particles of titanium oxide adhered thereon via an adhesive of fluorinated polymers, said photocatalyst particles containing a second component of at least one selected from the group consisting of metals and metal compounds of V, Fe, Co, Ni, Cu, Zn, Ru, Rh, Pd, Ag, Pt and Au, inside and/or on the surfaces thereof, and the content of said photocatalyst particles being in the range of 50-98% by volume based on the total amount of said photocatalyst particles and said fluorinated polymers.”

In Examples 1 to 3 of *Murasawa* which are pointed out by the Examiner, only a mixture of a photocatalyst with an organosilicon or a hydrofluorocarbon is described. *Murasawa* has no teaching or suggestion about the specific modification treatment as defined in claim 1 of the present application. Further, needless to say, *Murasawa* has no teaching or suggestion about the modified photocatalyst particles dispersed in a liquid medium.

Further, *Murasawa* does not teach or even suggest the modified photocatalyst composition defined in claim 14 of the present application (which comprises the

modified photocatalyst sol of claim 1), the modified photocatalyst/resin composition defined in claim 25 of the present application (which is produced using the modified photocatalyst sol of claim 1), modified photocatalyst particles defined in claim 53 of the present application (which are obtained by removing liquid medium from the modified photocatalyst sol of claim 1), a modified photocatalyst composition defined in claim 101 (which, in the form of a film or a shaped article, exhibits anisotropy with respect to the distribution of the modified photocatalyst particles), modified photocatalyst particles defined in claim 122 (which is produced using a modifier compound having a sensitizing group), modified photocatalyst particles defined in claim 141 (which is produced using a modifier compound having a specific reactive group), a modified photocatalyst sol defined in claim 165 (which is produced using a specific modifier compound represented by formula (5)), modified photocatalyst particles defined in claim 166 (which is produced using a specific modifier compound represented by formula (5)), modified photocatalyst particles defined in claim 167 (which are the same as contained in the sol of claim 1), modified photocatalyst particles defined in claim 168 (which is produced using a modifier compound having a sensitizing group), a modified photocatalyst composition defined in claim 169 (which contains a modified photocatalyst sol and a functional substance), and a modified photocatalyst composition defined in claim 170 (which contains a modified photocatalyst particles and a functional substance).

From the above, it is apparent that the modified photocatalyst sol of the present invention is distinct from the photocatalyst of *Murasawa*.

Accordingly, Applicant respectfully requests that the claim rejections under 35 U.S.C. § 102(b) as being anticipated by *Murasawa* be withdrawn.

(2) Claims 1-38 are rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by *Kimura*.

The Office Action points to the descriptions at col. 9, line 1 through col. 12, line 49 of *Kimura* for reference.

Applicant respectfully traverses the rejections.

As can be seen in claim 1 of *Kimura*, this reference discloses:

“A photocatalyst coating composition which comprises a photocatalyst and at least one compound which imparts alkali resistance to said composition, which compound is selected from the group consisting of a zirconium compound, a tin compound, and admixtures thereof.”

At col.9, line 1 through col.12, line 49 of *Kimura* which are pointed out by the Examiner, various silicon compounds are mentioned. However, *Kimura* has no teaching or suggestion about the specific modification treatment as defined in claim 1 of the present application. Further, needless to say, *Kimura* has no teaching or suggestion about the modified photocatalyst particles dispersed in a liquid medium.

Moreover, *Kimura* does not teach or even suggest the modified photocatalyst composition defined in claim 14 of the present application (which comprises the modified photocatalyst sol of claim 1), the modified photocatalyst/resin composition defined in claim 25 of the present application (which is produced using the modified photocatalyst sol of claim 1), modified photocatalyst particles defined in claim 53 of the present application (which are obtained by removing liquid medium from the modified photocatalyst sol of claim 1), a modified photocatalyst composition defined in claim 101 (which, in the form of a film or a shaped article, exhibits anisotropy with respect to the distribution of the modified photocatalyst particles), modified photocatalyst particles defined in claim 122 (which is produced using a modifier compound having a sensitizing group), modified photocatalyst particles defined in claim 141 (which is produced using a modifier compound having a specific reactive group), a modified photocatalyst sol defined in claim 165 (which is produced using a specific modifier compound represented by formula (5)), modified photocatalyst particles defined in

claim 166 (which is produced using a specific modifier compound represented by formula (5)), modified photocatalyst particles defined in claim 167 (which are the same as contained in the sol of claim 1), modified photocatalyst particles defined in claim 168 (which is produced using a modifier compound having a sensitizing group), a modified photocatalyst composition defined in claim 169 (which contains a modified photocatalyst sol and a functional substance), and a modified photocatalyst composition defined in claim 170 (which contains a modified photocatalyst particles and a functional substance).

Thus, it is apparent that the modified photocatalyst sol of the present invention is distinct from the photocatalyst composition disclosed in *Kimura*.

Accordingly, Applicant respectfully requests that the claim rejections under 35 U.S.C. § 102(e) as being anticipated by *Kimura* be withdrawn.

In view of the above amendments and remarks, reconsideration and an early favorable action are earnestly solicited.

No fee, other than the extension fees, is believed to be due for this submission. Should any fee(s) be required, please charge such fee(s) to Deposit Account No. 50-2215.

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Respectfully submitted,

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